Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An acoustic sensor, comprising:

a laminate including a piezoelectric transducer element having first and second faces, the laminate further including a matching layer assembly deployed on the second face of the transducer element;

the transducer element including conductive electrodes disposed on the first and second faces thereof; and

the matching layer assembly including at least one matching layer and an impact barrier layer, the impact barrier layer including a metallic material, the at least one matching layer being deployed between the transducer element and the impact barrier layer.

2. (Original) The acoustic sensor of claim 1, wherein the at least one matching layer comprises first and second matching layers, the first matching layer being deployed between the transducer element and the second matching layer.

3. (Original) The acoustic sensor of claim 2, wherein the first matching layer has an acoustic impedance in the range from about 8 to about 14 MRayl.

4. (Original) The acoustic sensor of claim 2, wherein the first matching layer comprises an epoxy resin.

5. (Original) The acoustic sensor of claim 4, wherein the first matching layer comprises a composite mixture of a ceramic material and the epoxy resin.

6. (Original) The acoustic sensor of claim 2, wherein the first matching layer comprises a ceramic material.

7. (Original) The acoustic sensor of claim 2, wherein the second matching layer has an acoustic impedance in the range from about 3 to about 7 Mrayl.

8. (Original) The acoustic sensor of claim 2, wherein the second matching layer comprises an epoxy resin.

9. (Original) The acoustic sensor of claim 2, wherein the second matching layer comprises a composite mixture of a ceramic material and an epoxy resin.

10. (Original) The acoustic sensor of claim 2, wherein the first matching layer and the second matching layer are formed from a single ceramic work piece.

11. (Original) The acoustic sensor of claim 10, wherein the ceramic work piece has a plurality of openings formed in one face thereof, the openings being filled with an epoxy resin.

12. (Original) The acoustic sensor of claim 11, wherein the openings are selected from the group consisting of holes, cuts, grooves, dimples, and indentations.

13. (Original) The acoustic sensor of claim 11, wherein the plurality of openings comprise from about 40 to about 80 volume percent of the second matching layer.

14. (Original) The acoustic sensor of claim 1, wherein the at least one matching layer comprises a single matching layer having an acoustic impedance that decreases from a relatively higher value at a first face of the matching layer to a relatively lower value at a second face of the matching layer.

15. (Original) The acoustic sensor of claim 14, wherein the single matching layer comprises a glass ceramic disk having a plurality of openings formed in one face of the matching layer, the openings being filled with an epoxy resin.

16. (Original) The acoustic sensor of claim 15, wherein the openings are tapered such that an area ratio of the epoxy resin to the glass ceramic increases from the first face to the second face.

17. (Original) The acoustic sensor of claim 1, wherein the metallic material is selected from the group consisting of stainless steel and titanium.

18. (Original) The acoustic sensor of claim 1, wherein the metallic material comprises titanium.

19. (Currently amended) The acoustic sensor of claim 1, wherein the impact barrier layer has an acoustic impedance less than about 10 MRayl.

20. (Currently amended) The acoustic sensor of claim 1 wherein the impact barrier layer is corrugated.

21. (Original) The acoustic sensor of claim 20, wherein said corrugated barrier layer is formed by a metal stamping process.

22. (Currently amended) The acoustic sensor of claim 1, wherein the impact barrier layer comprises a composite material including a metallic work piece including opposing faces, the work piece having a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin.

23. (Original) The acoustic sensor of claim 22, wherein the openings are selected from the group consisting of holes, cuts, and grooves.

24. (Original) The acoustic sensor of claim 22, wherein the openings comprise a plurality of concentric grooves.

25. (Currently amended) The acoustic sensor of claim 1, wherein the impact barrier layer is welded to a sensor housing.

26. (Original) The acoustic sensor of claim 1, wherein the transducer comprises a piezo-ceramic transducer element.

27. (Original) The acoustic sensor of claim 1, wherein the transducer comprises a piezo-composite transducer element.

28. (Original) The acoustic sensor of claim 1, wherein the laminate further comprises a backing layer, the backing layer being deployed on the first face of the transducer element.

29. (Currently amended) An acoustic sensor comprising:

a laminate including a piezoelectric transducer element having first and second faces, the laminate further including a matching layer assembly deployed on the second face of the transducer element;

the transducer element including conductive electrodes disposed on the first and second faces thereof; and

the matching layer assembly including at least one matching layer formed from a substantially planar ceramic work piece, the ceramic work piece including a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin.

30. (Original) The acoustic sensor of claim 29, wherein the ceramic work piece has an acoustic impedance in the range from about 8 to about 14 MRayl.

31. (Currently amended) The acoustic sensor of claim 29, wherein the at least one matching layer comprises first and second matching layers~~, the ceramic work piece including a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin~~.

32. (Currently amended) The acoustic sensor of claim 29[[31]], wherein the openings are selected from the group consisting of holes, cuts, grooves, dimples, and indentations.

33. (Original) The acoustic sensor of claim 31, wherein the plurality of openings comprise from about 40 to about 80 volume percent of the second matching layer.

34. (Original) The acoustic sensor of claim 29, wherein the at least one matching layer comprises a single matching layer having an acoustic impedance that decreases from a relatively higher value at a first face of the matching layer to relatively lower value at a second face of the matching layer.

35. (Cancelled)

36. (Currently amended) The acoustic sensor of claim 29[[35]], wherein the openings are tapered such that an area ratio of the epoxy resin to glass ceramic increases from the first face to the second face.

37. (Currently amended) An acoustic sensor comprising:

a laminate including a piezoelectric transducer element having first and second faces, the laminate further including a barrier layer deployed proximate the second face of the transducer element on an outermost surface of the laminate;

the transducer element including conductive electrodes disposed on the first and second faces thereof; ~~and~~

the barrier layer including a metallic material; and

the barrier layer being selected from the group consisting of (i) a corrugated barrier layer and (ii) a composite barrier layer including a metallic work piece having a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin.

38. (Original) The acoustic sensor of claim 37, wherein the metallic material comprises titanium.

39. (Original) The acoustic sensor of claim 37, wherein the barrier layer has an acoustic impedance less than about 10 MRayl.

40. (Cancelled)

41. (Currently amended) The acoustic sensor of claim 37[[38]], wherein said corrugated barrier layer is formed by a metal stamping process.

42. (Cancelled)

43. (Currently amended) The acoustic sensor of claim 37[[42]], wherein the openings are selected from the group consisting of holes, cuts, and grooves.

44. (Currently amended) The acoustic sensor of claim 37[[42]], wherein the openings comprise a plurality of concentric grooves.

45. (Currently amended) A downhole measurement tool comprising:

a substantially cylindrical tool body;

at least one acoustic sensor deployed on the tool body, the acoustic sensor including a piezoelectric transducer element having first and second faces, the transducer element in electrical communication with an electronic control module via conductive electrodes disposed on each of said faces; and

the acoustic sensor further including a matching layer assembly deployed on the second face of the transducer element, the matching layer assembly including at least one matching layer and an impact barrier layer, the impact barrier layer including a metallic material, the at least one matching layer being deployed between the transducer element and the impact barrier layer.

46. (Currently amended) A method for fabricating an acoustic sensor, the method comprising:

providing a piezoelectric transducer element including at least one face thereon;

deploying at least one matching layer on one of the at least one faces of the transducer element; and

deploying an impact barrier layer on one of the at least one matching layers, all of the at least one matching layers being deployed between the transducer element and the impact barrier layer, the impact barrier layer including a metallic material.

47. (New) An acoustic sensor comprising:

a laminate including a piezoelectric transducer element having first and second faces, the laminate further including a matching layer assembly deployed on the second face of the transducer element;

the transducer element including conductive electrodes disposed on the first and second faces thereof; and

the matching layer assembly including at least one matching layer and a barrier layer, the barrier layer including a metallic material, the at least one matching layer being deployed between the transducer element and the barrier layer, the at least one matching layer including a plurality of openings formed in one face thereof, the openings being filled with an epoxy resin.

48. (New) The acoustic sensor of claim 47, wherein the at least one matching layer comprises first and second matching layers formed from a single ceramic work piece.

49 (New) The acoustic sensor of claim 47, wherein the openings are selected from the group consisting of holes, cuts, grooves, dimples, and indentations.

50. (New) The acoustic sensor of claim 47, wherein the at least one matching layer has an acoustic impedance that decreases from a relatively higher value at a first face of the matching layer to a relatively lower value at a second face of the matching layer.

51. (New) The acoustic sensor of claim 50, wherein the openings are tapered such that an area ratio of the epoxy resin to the glass ceramic increases from the first face to the second face.

52. (New) The downhole tool of claim 45, wherein the at least one matching layer includes a plurality of openings formed in one face thereof, the openings being filled with an epoxy resin.

53. (New) The downhole tool of claim 45, wherein the barrier layer is selected from the group consisting of (i) a corrugated barrier layer and (ii) a composite barrier layer including a metallic work piece having a plurality of openings formed in one face thereof, the plurality of openings being filled with an epoxy resin.